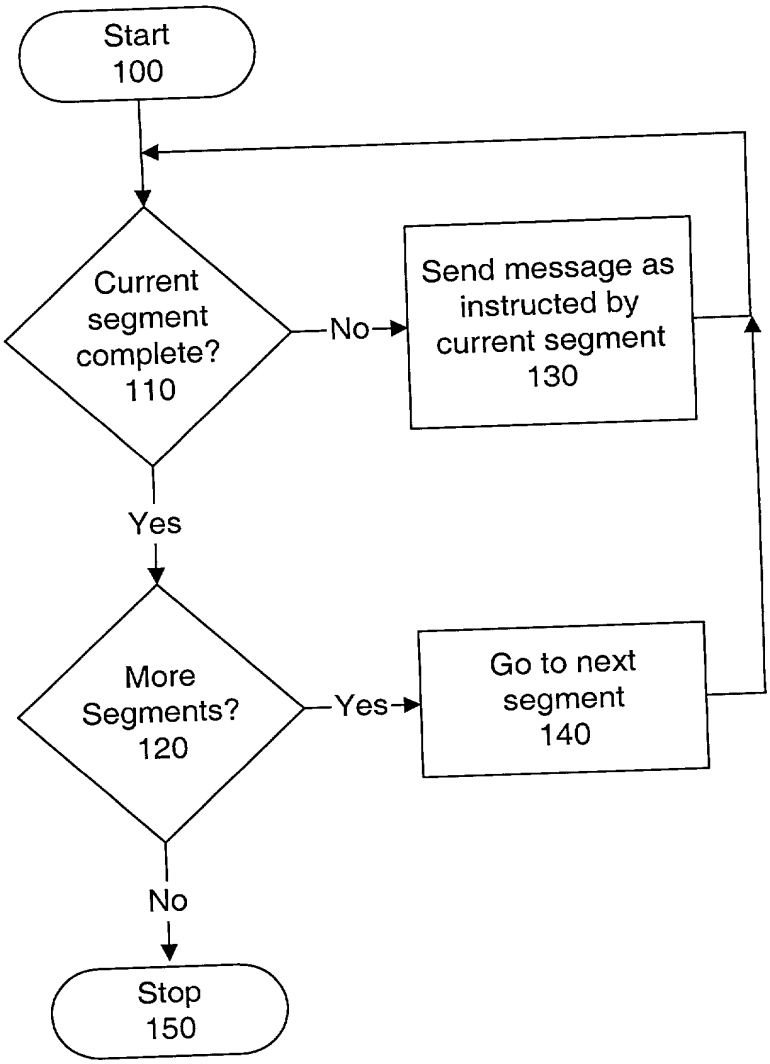
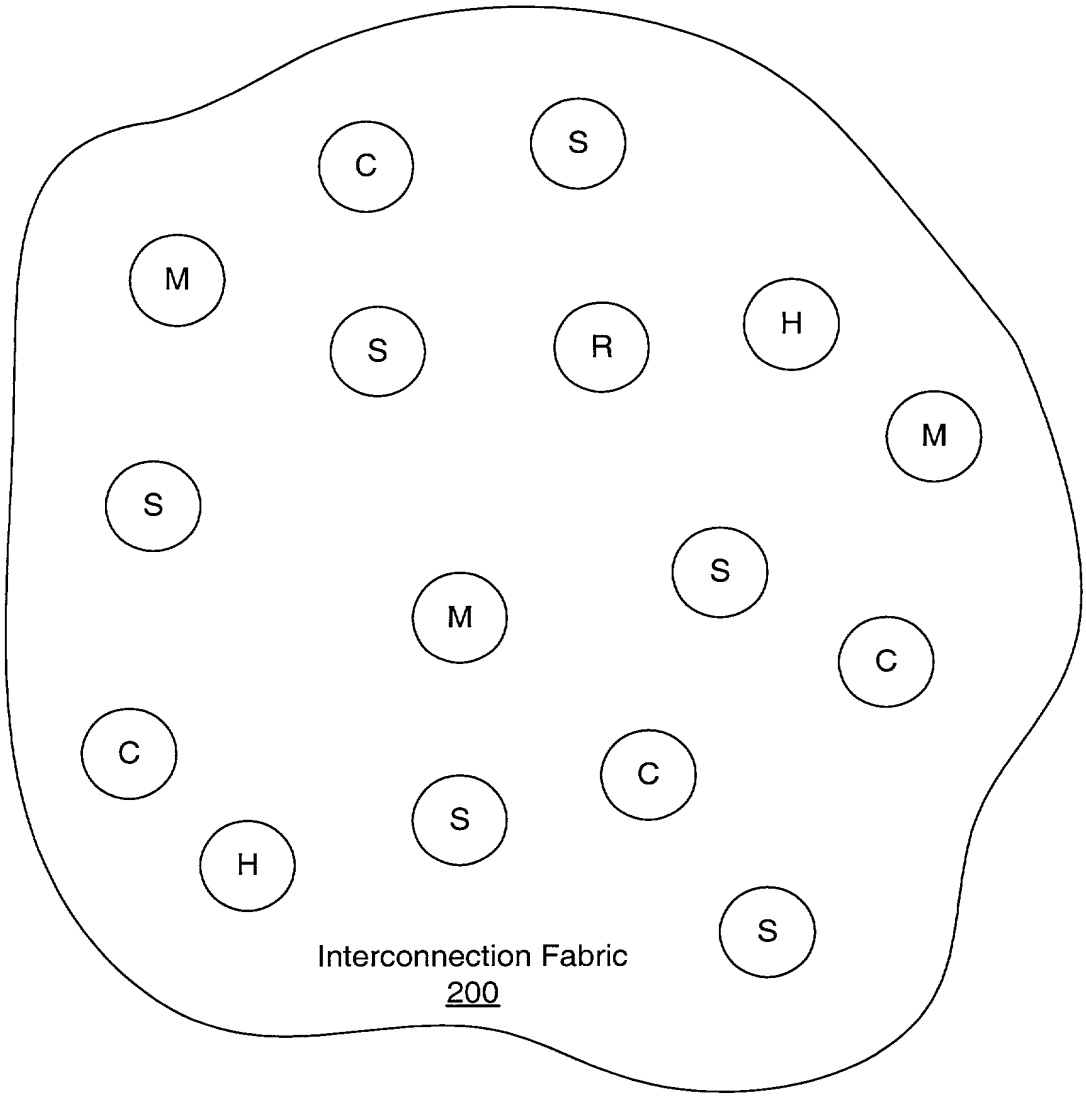

Start
100
Current segment complete?
110
No
Send message as instructed by current segment
130
Yes
More Segments?
120
Yes
Go to next segment
140
No
Stop
150

Figure 1



H - Host Interface or Line Card
S - Mass Storage (e.g. Disk Drive)
M - Memory (e.g. Storage Cache)
C - Controller, (e.g. RAID Controller)
R - Router Node

Figure 2

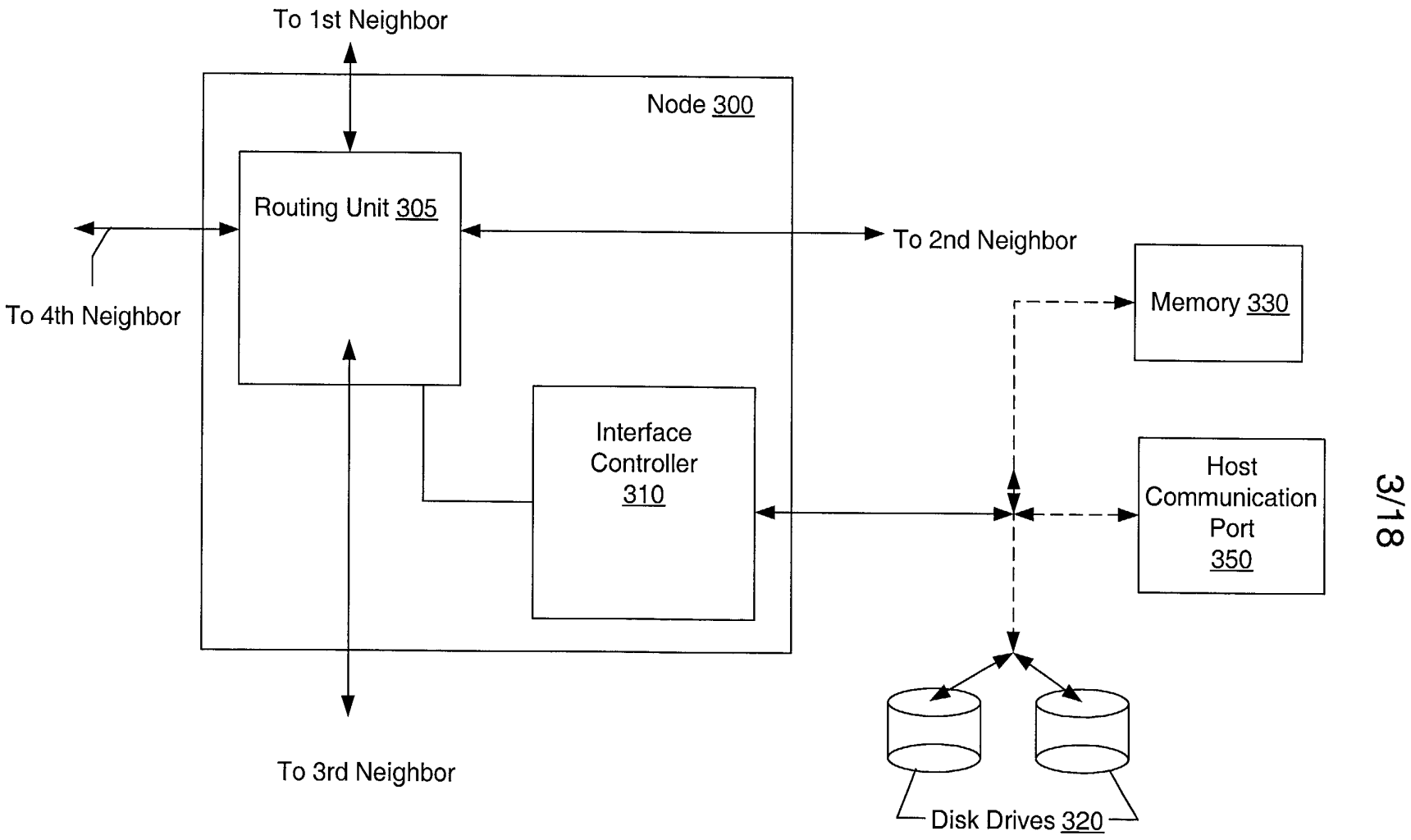

To 1st Neighbor
Node 300
Routing Unit 305
To 2nd Neighbor
To 4th Neighbor
Memory 330
Interface Controller 310
Host Communication Port 350
To 3rd Neighbor
Disk Drives 320

Figure 3

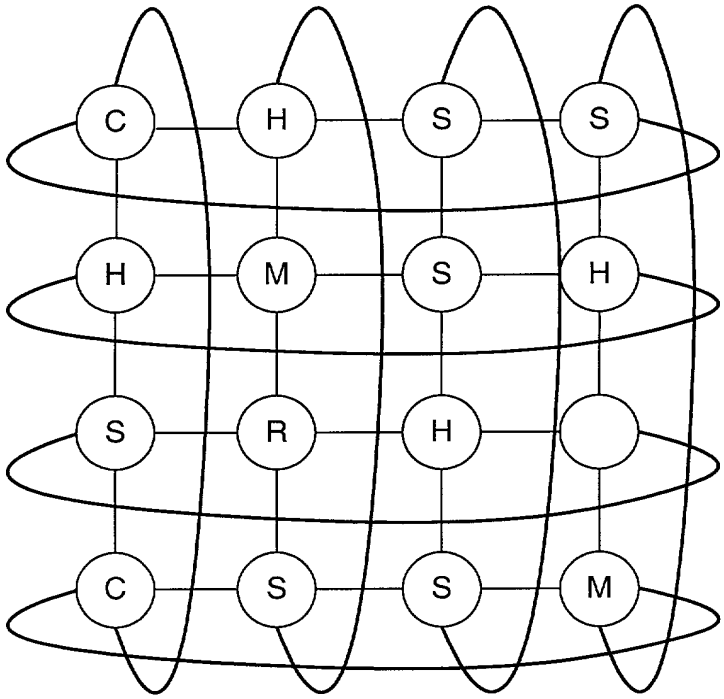


Figure 4A

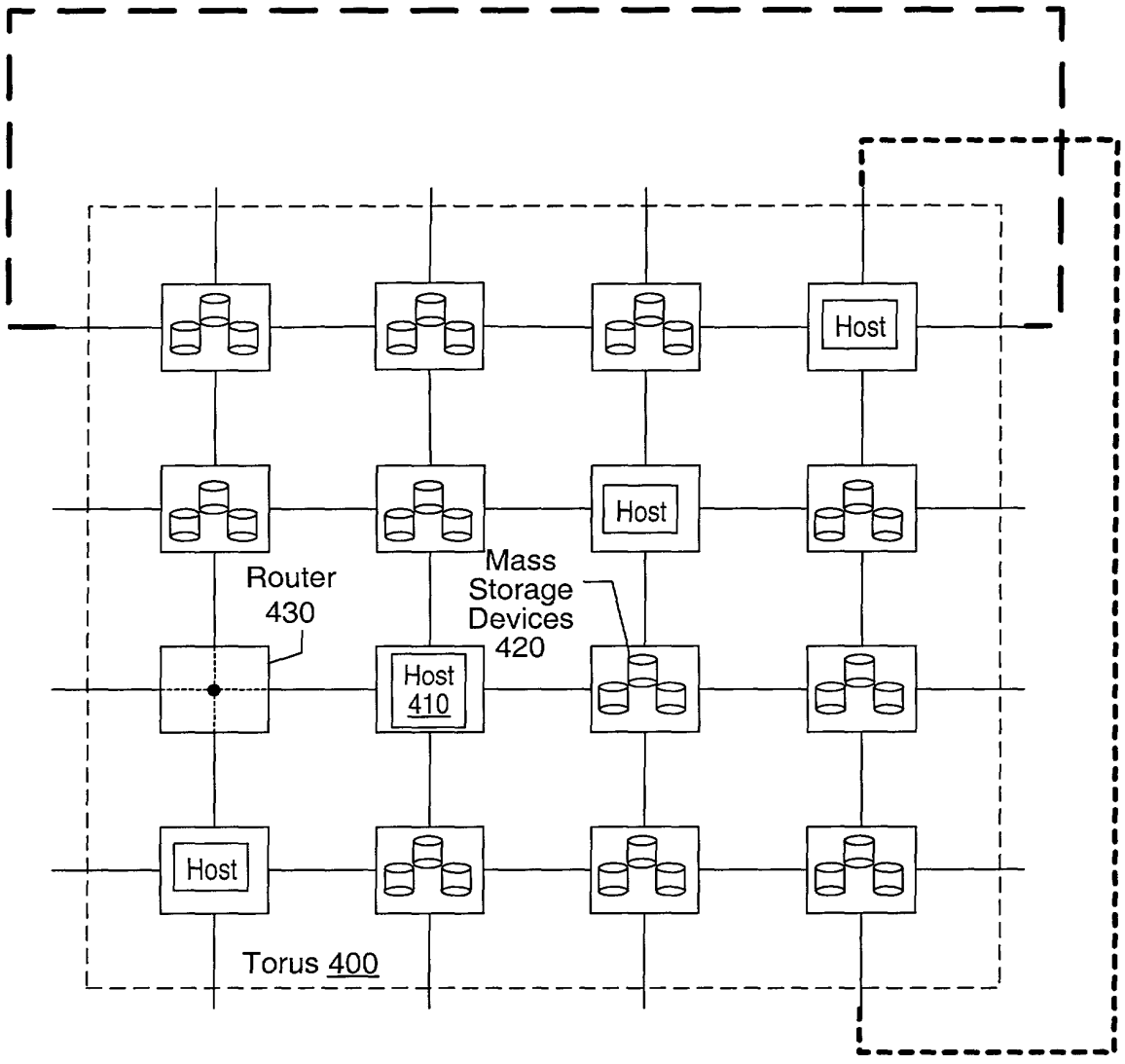

Host
Host
Router
430
Mass
Storage
Devices
420
Host
410
Host
Torus 400

Figure 4B

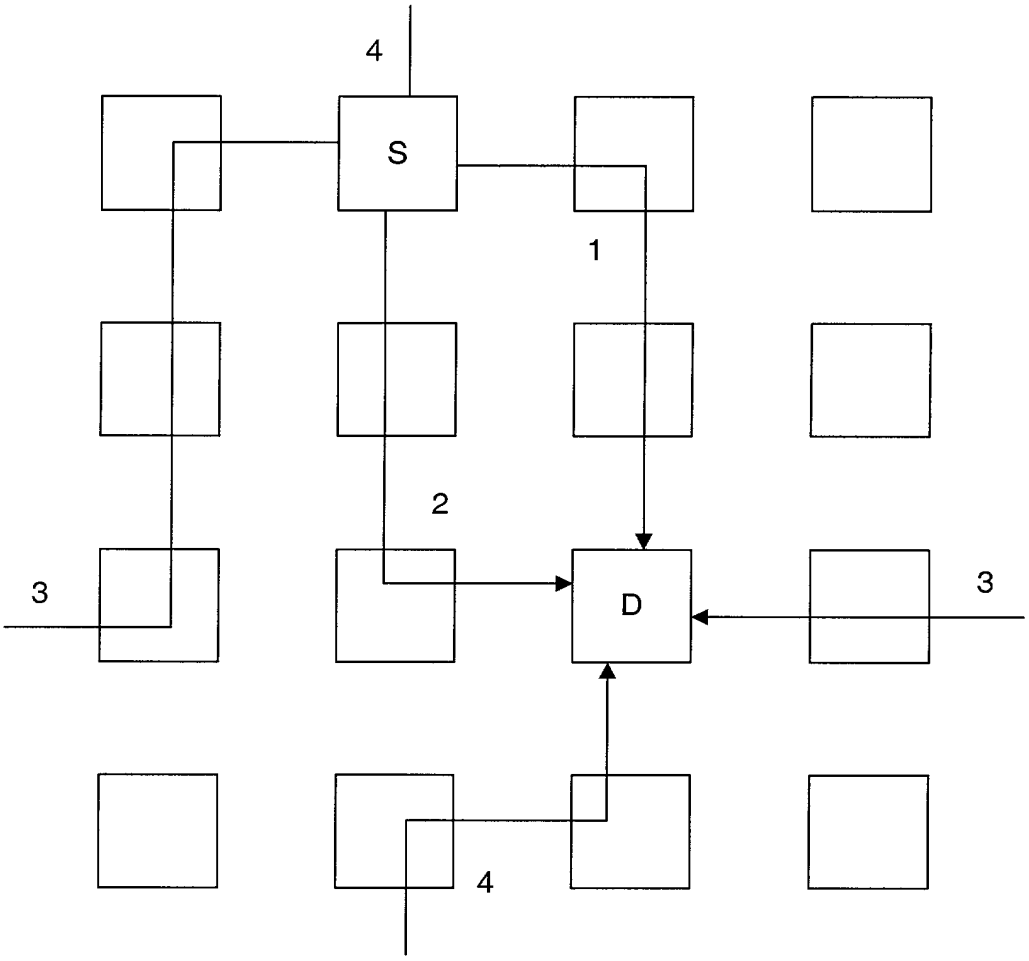


Figure 5

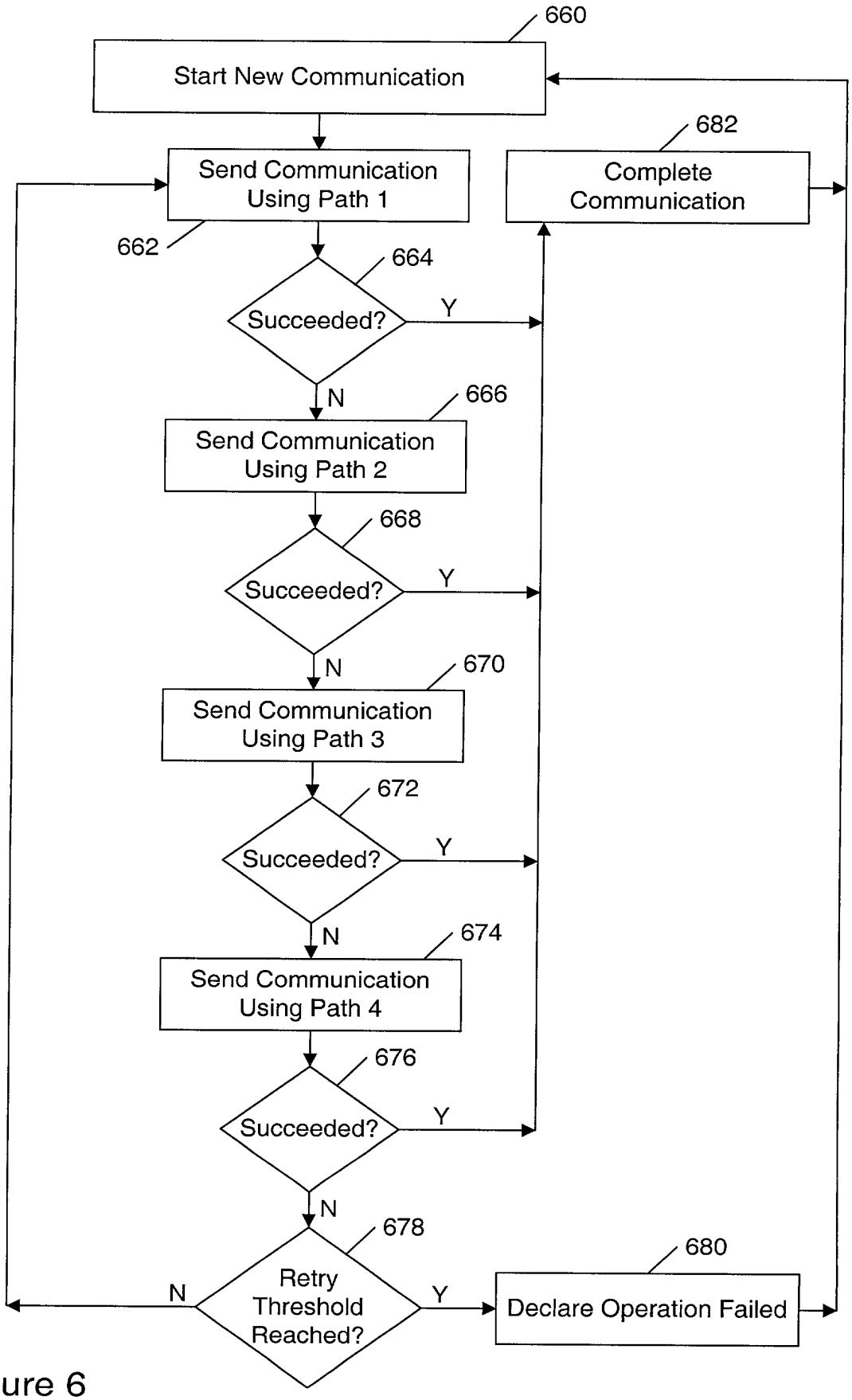

660
Start New Communication
682
Send Communication Using Path 1
Complete Communication
662
664
Succeeded?
Y
N
666
Send Communication Using Path 2
668
Succeeded?
Y
N
670
Send Communication Using Path 3
672
Succeeded?
Y
N
674
Send Communication Using Path 4
676
Succeeded?
Y
N
678
Retry Threshold Reached?
N
Y
680
Declare Operation Failed

Figure 6

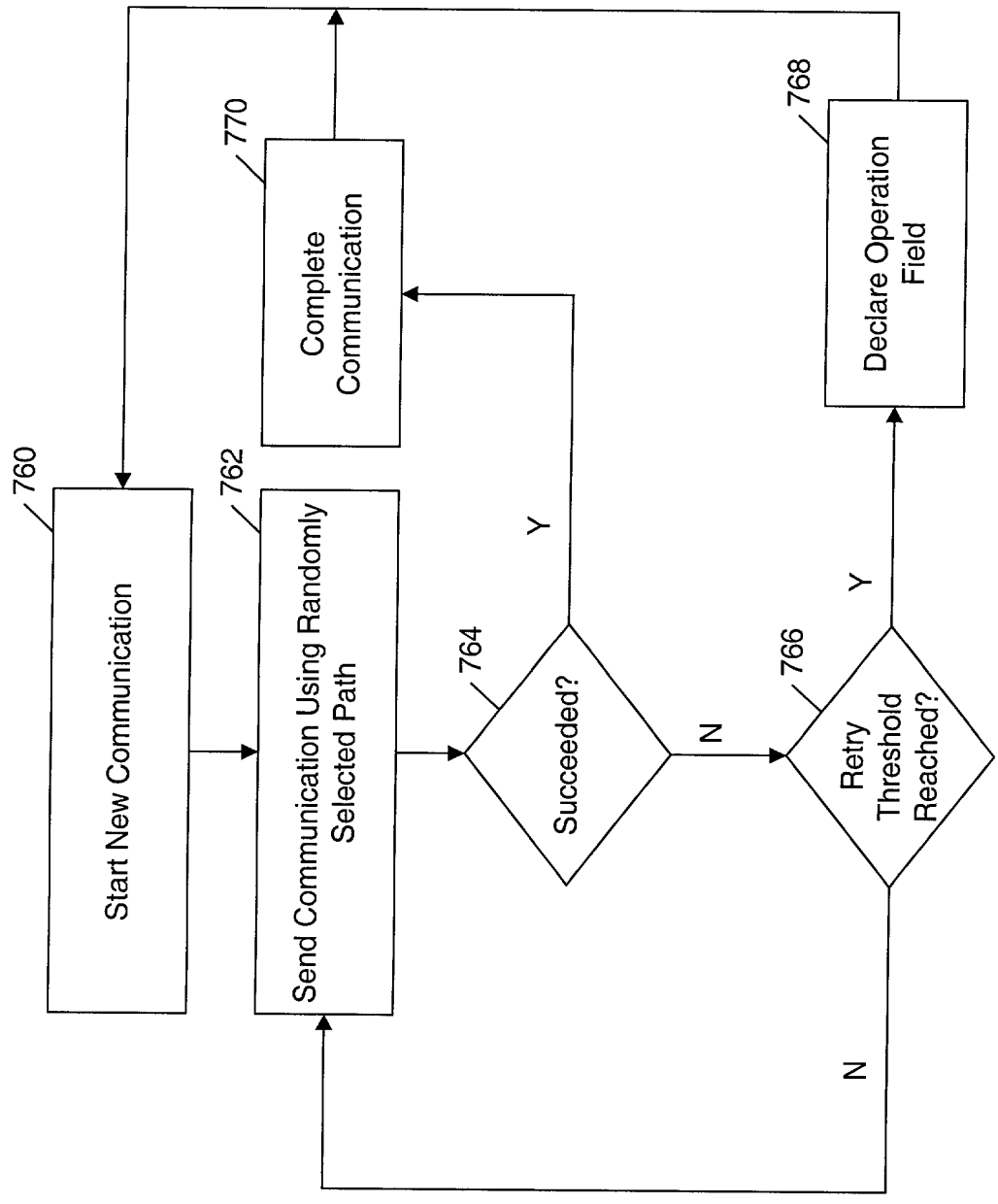

760
Start New Communication
762
Send Communication Using Randomly Selected Path
764
Succeeded?
Y
N
766
Retry Threshold Reached?
Y
N
768
Declare Operation Field
770
Complete Communication

Figure 7

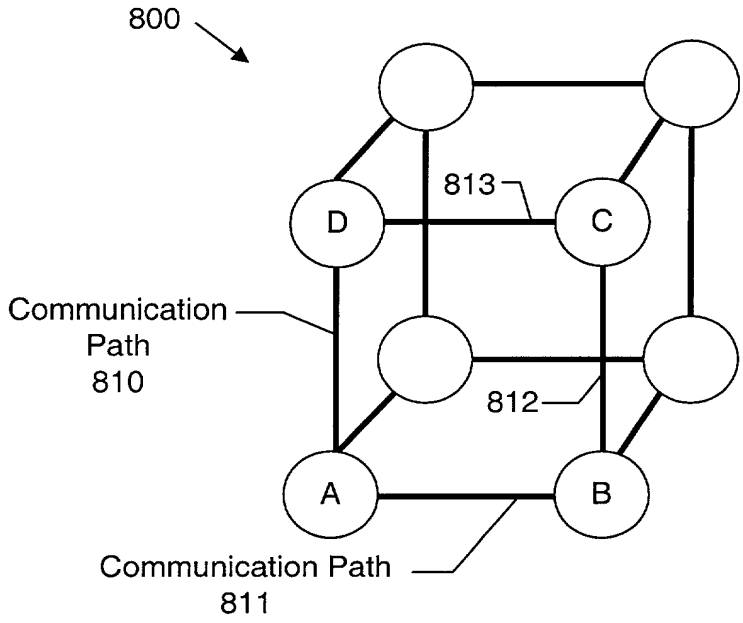


Figure 8A

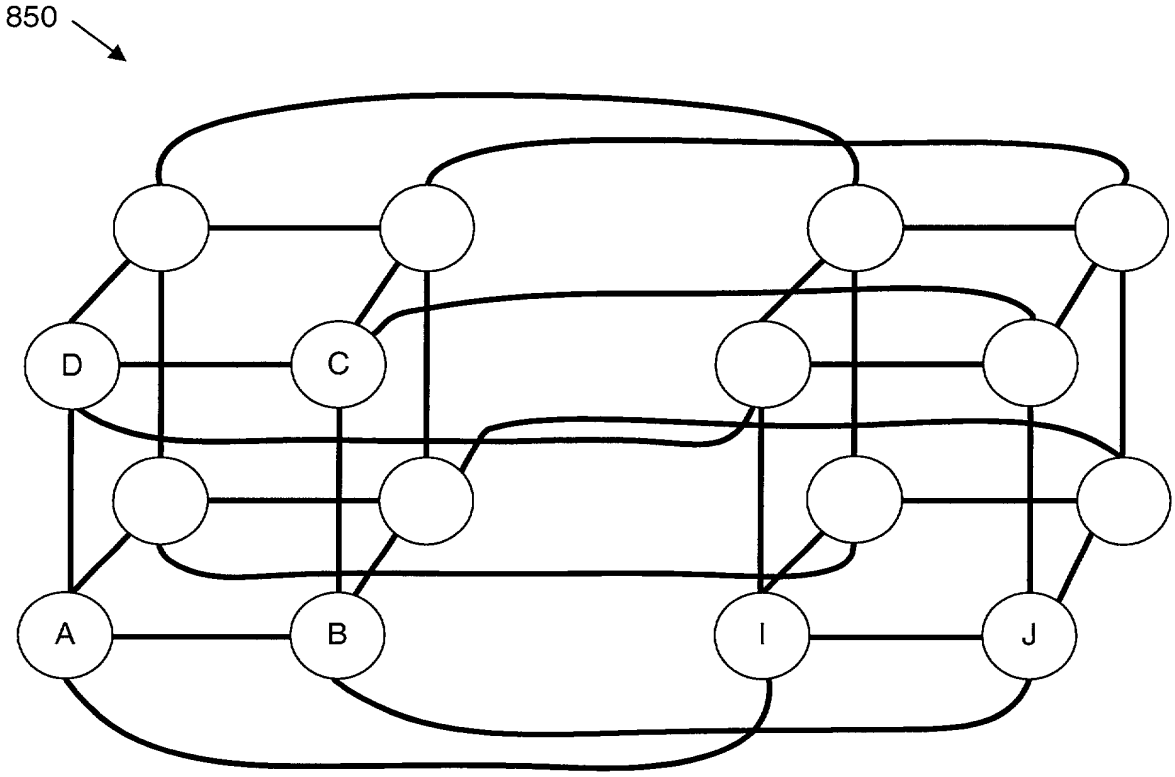


Figure 8B

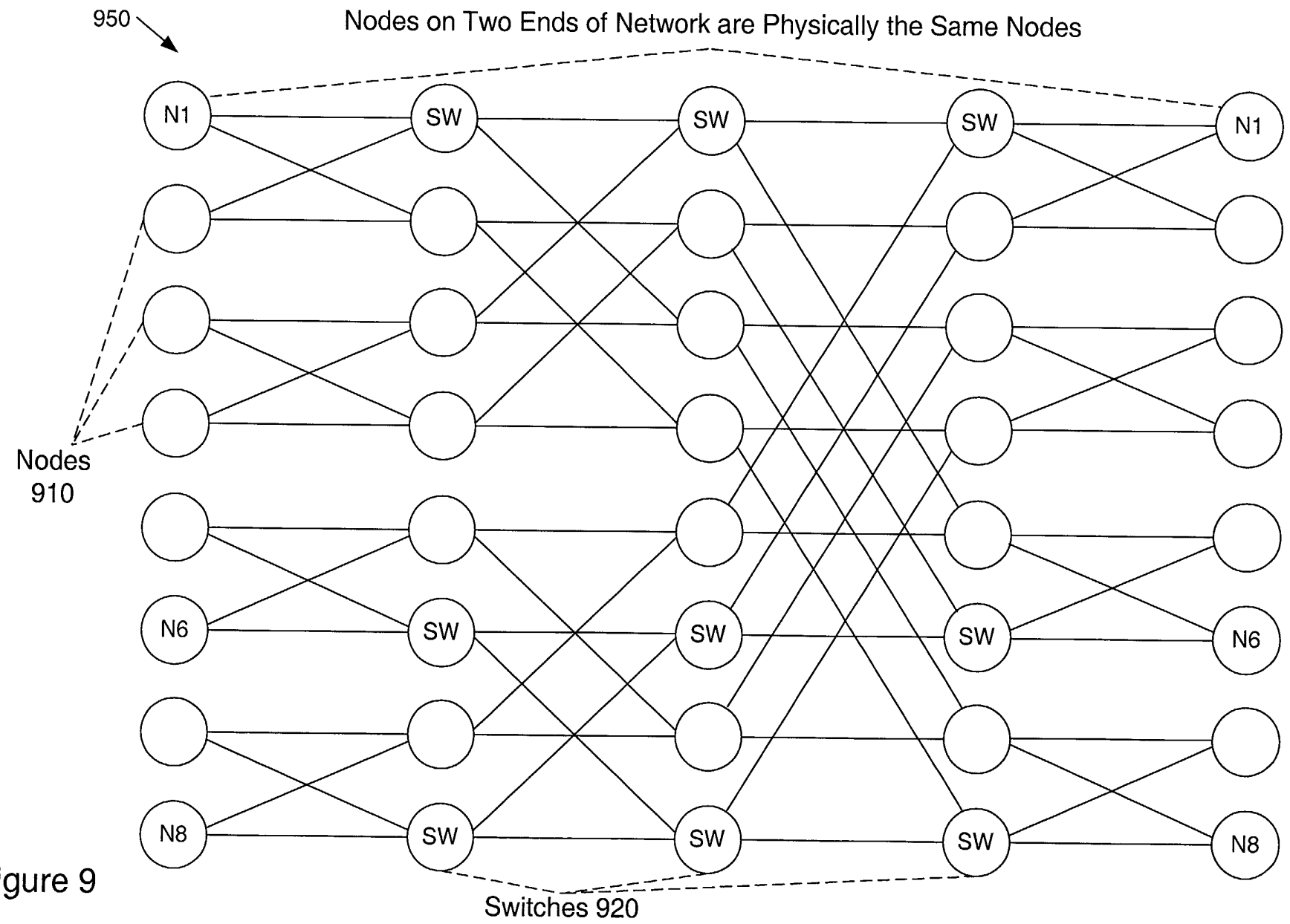

950
Nodes on Two Ends of Network are Physically the Same Nodes
N1
SW
SW
SW
N1
Nodes
910
N6
SW
SW
SW
N6
N8
SW
SW
SW
N8
Switches 920

Figure 9

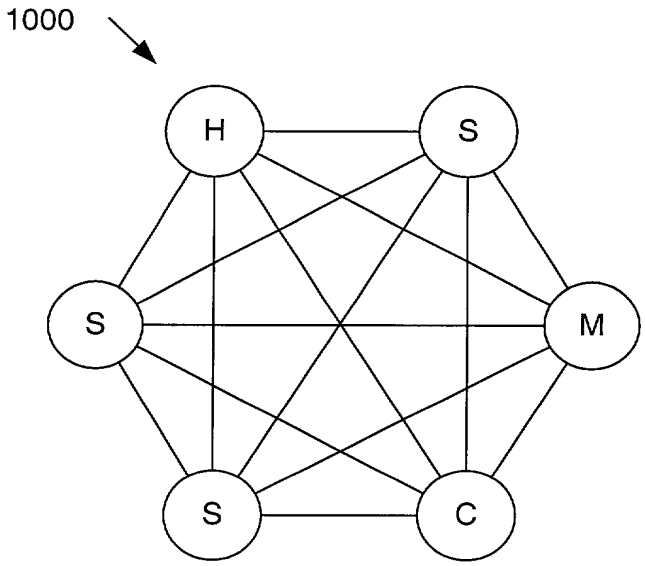


Figure 10

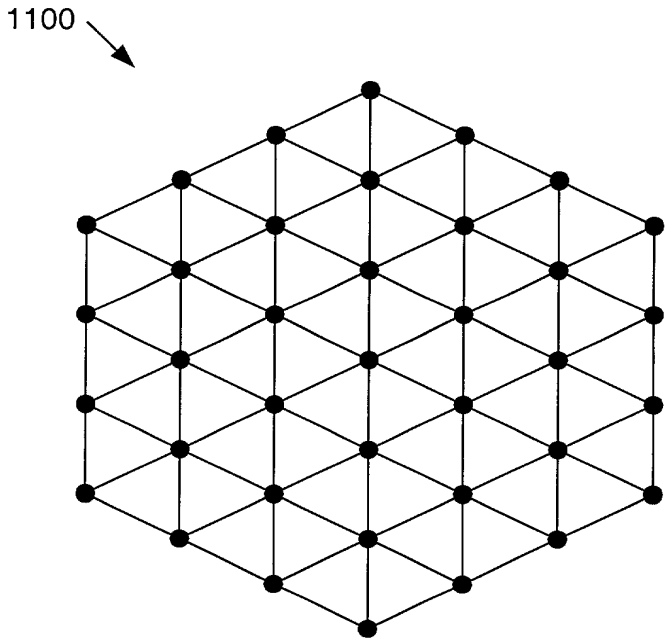


Figure 11

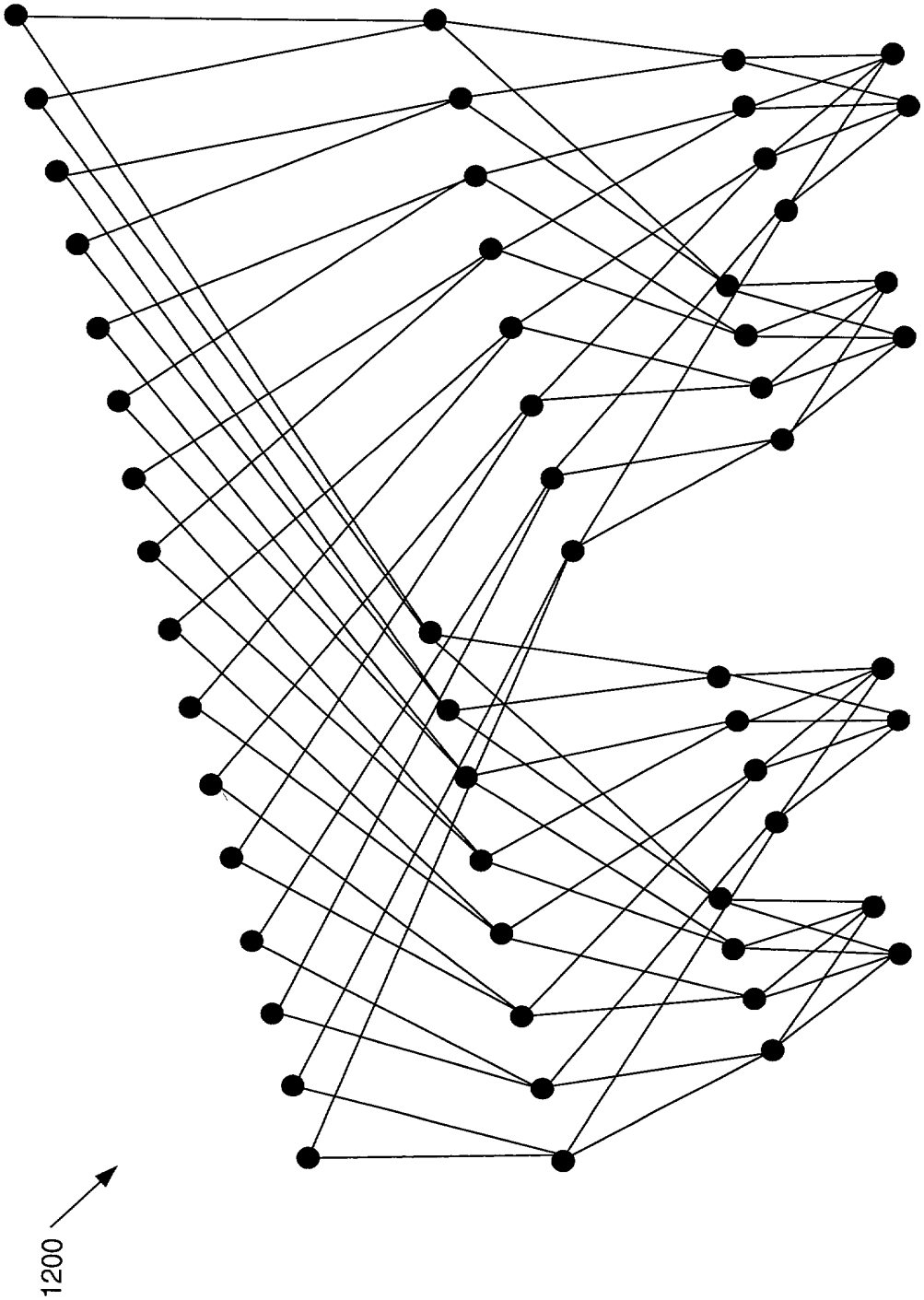


Figure 12

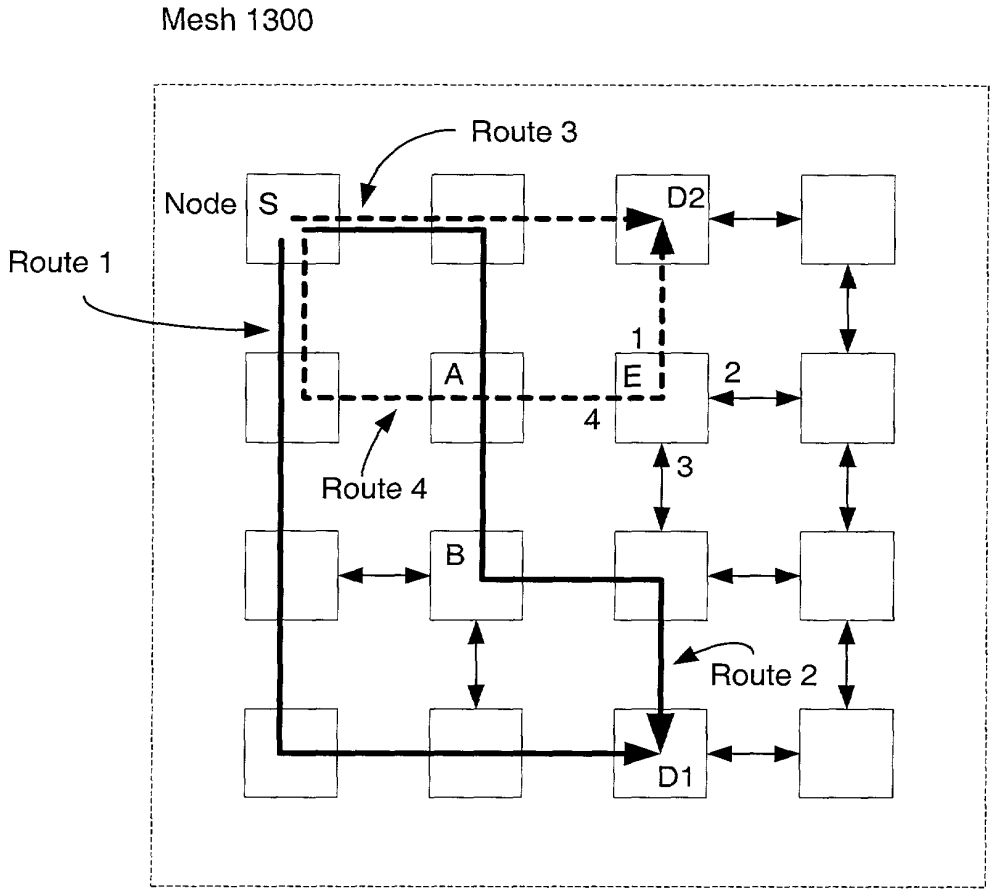


Figure 13

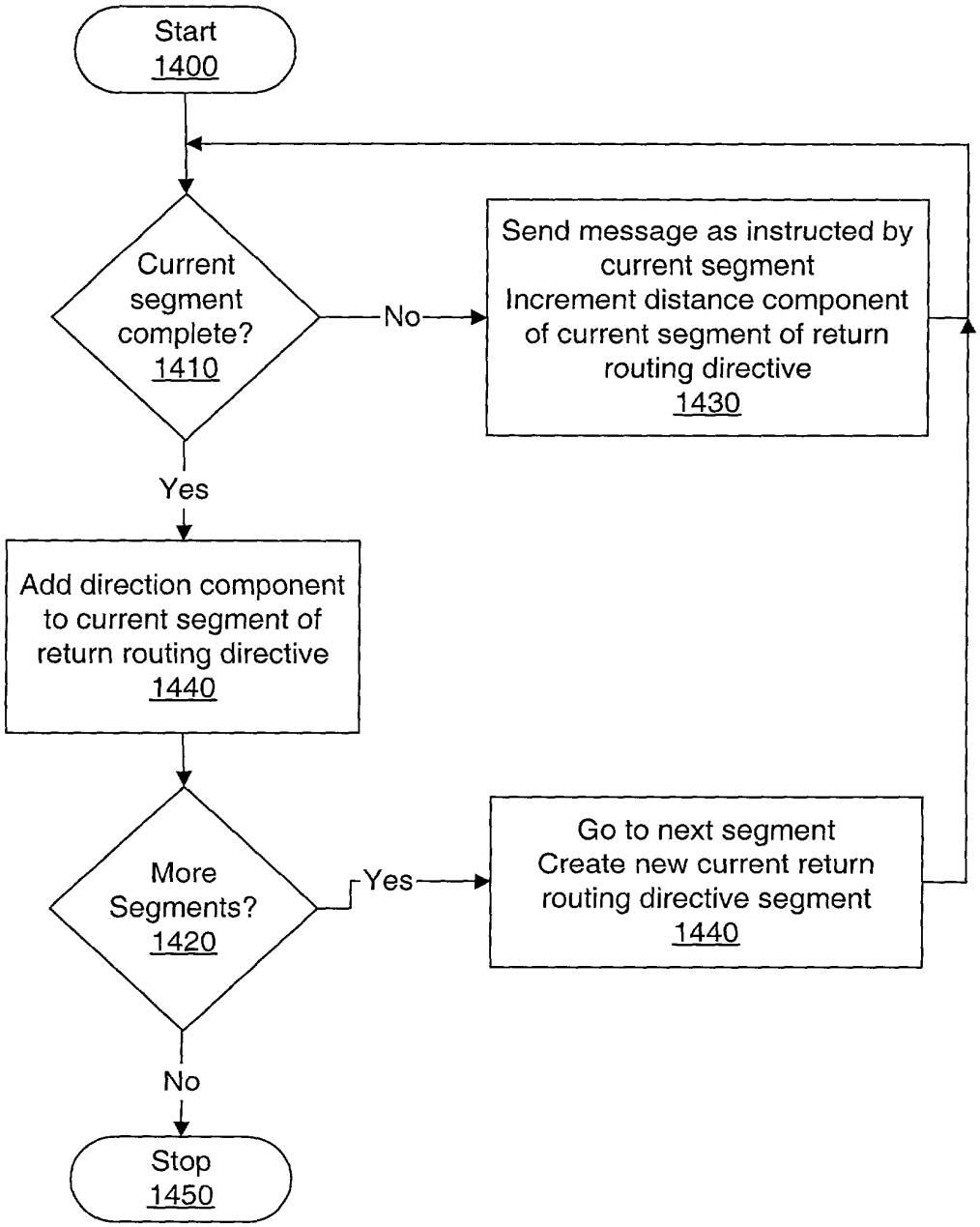

Start
1400
Current segment complete?
1410
No
Send message as instructed by current segment
Increment distance component of current segment of return routing directive
1430
Yes
Add direction component to current segment of return routing directive
1440
More Segments?
1420
Yes
Go to next segment
Create new current return routing directive segment
1440
No
Stop
1450

Figure 14

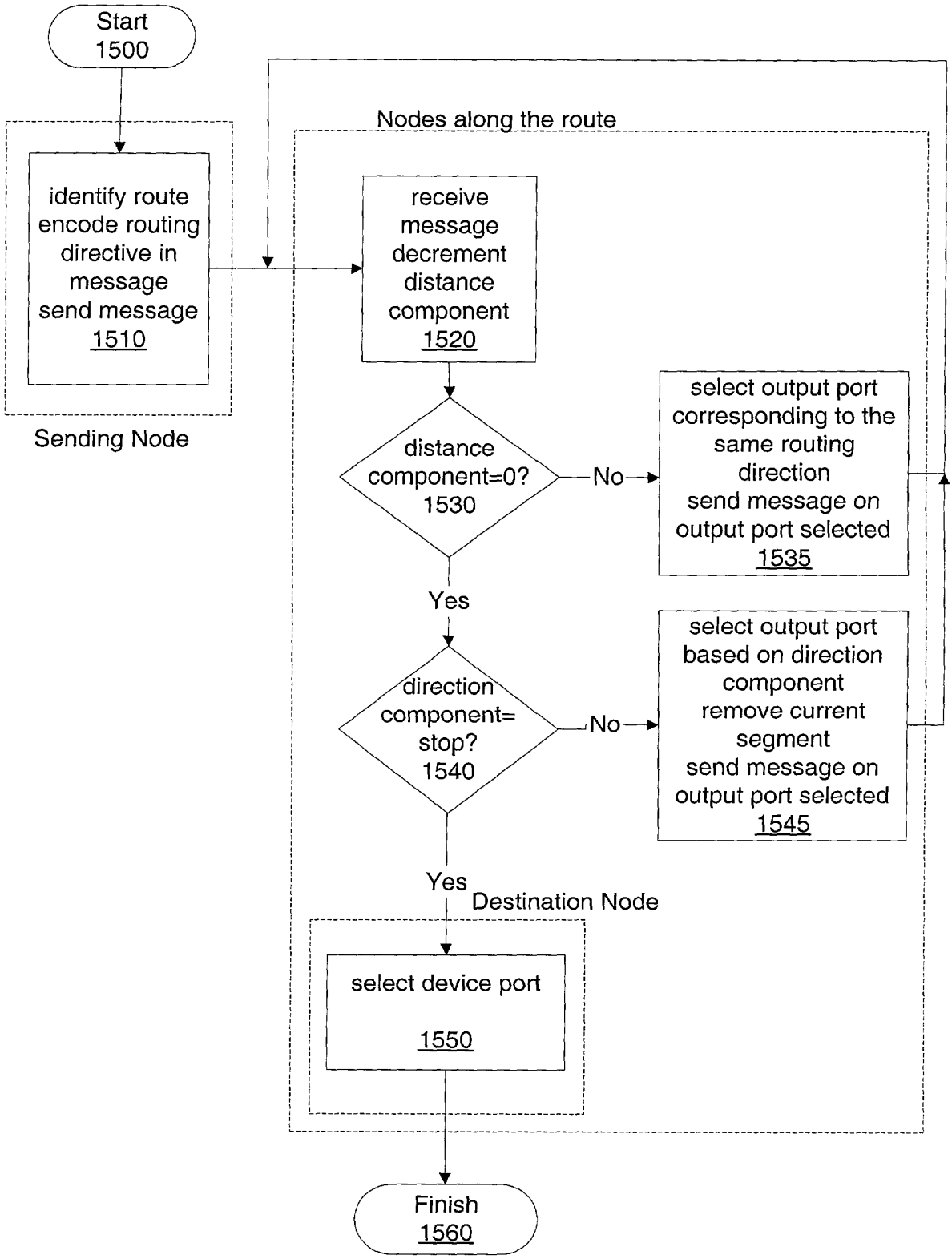

Start
1500
Sending Node
identify route
encode routing
directive in
message
send message
1510
Nodes along the route
receive
message
decrement
distance
component
1520
distance
component=0?
1530
No
select output port
corresponding to the
same routing
direction
send message on
output port selected
1535
Yes
direction
component=
stop?
1540
No
select output port
based on direction
component
remove current
segment
send message on
output port selected
1545
Yes
Destination Node
select device port
1550
Finish
1560

Figure 15

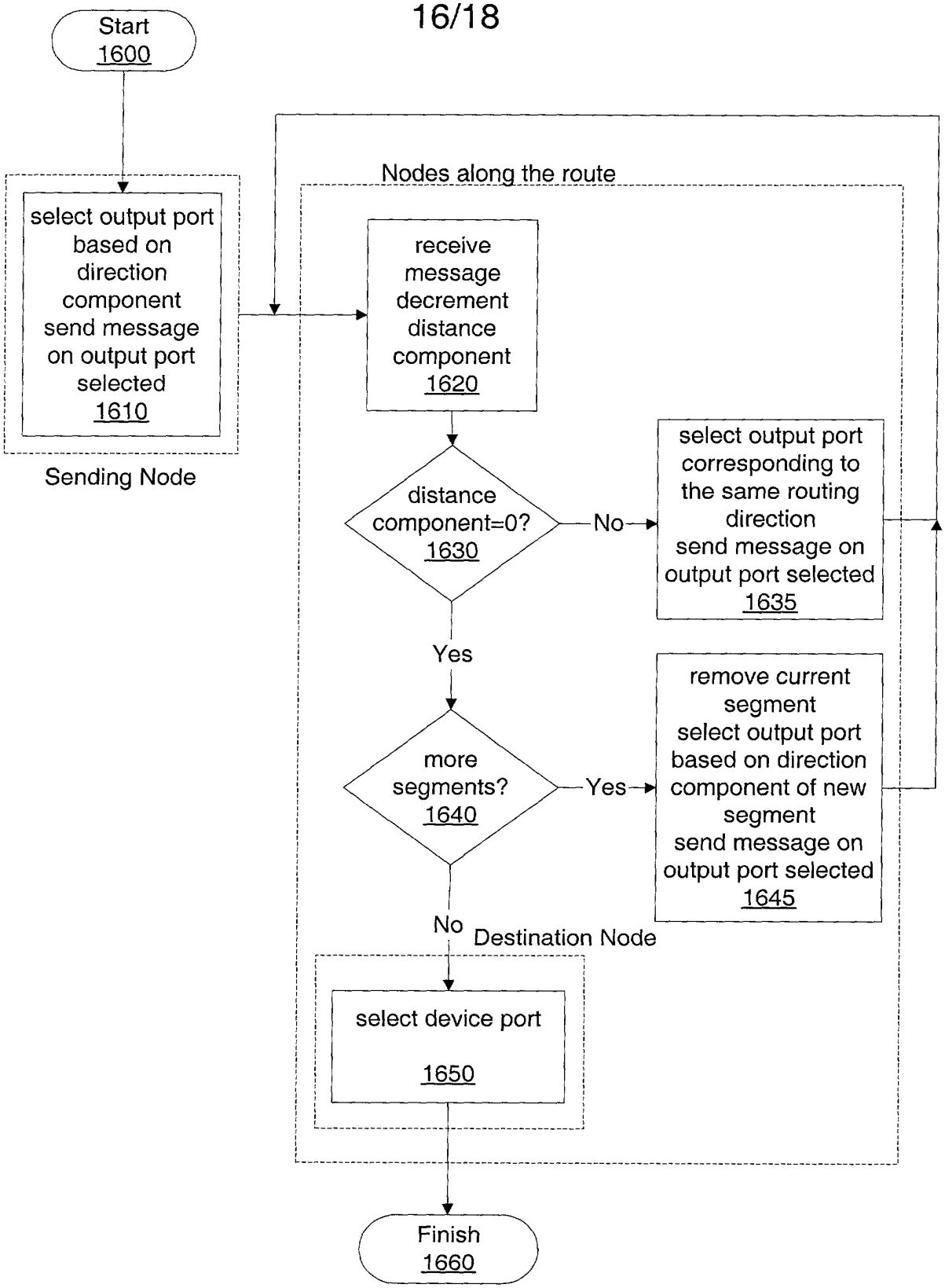

Start
1600
select output port based on direction component send message on output port selected
1610
Sending Node
Nodes along the route
receive message decrement distance component
1620
distance component=0?
1630
No
select output port corresponding to the same routing direction send message on output port selected
1635
Yes
more segments?
1640
Yes
remove current segment select output port based on direction component of new segment send message on output port selected
1645
No
Destination Node
select device port
1650
Finish
1660

Figure 16

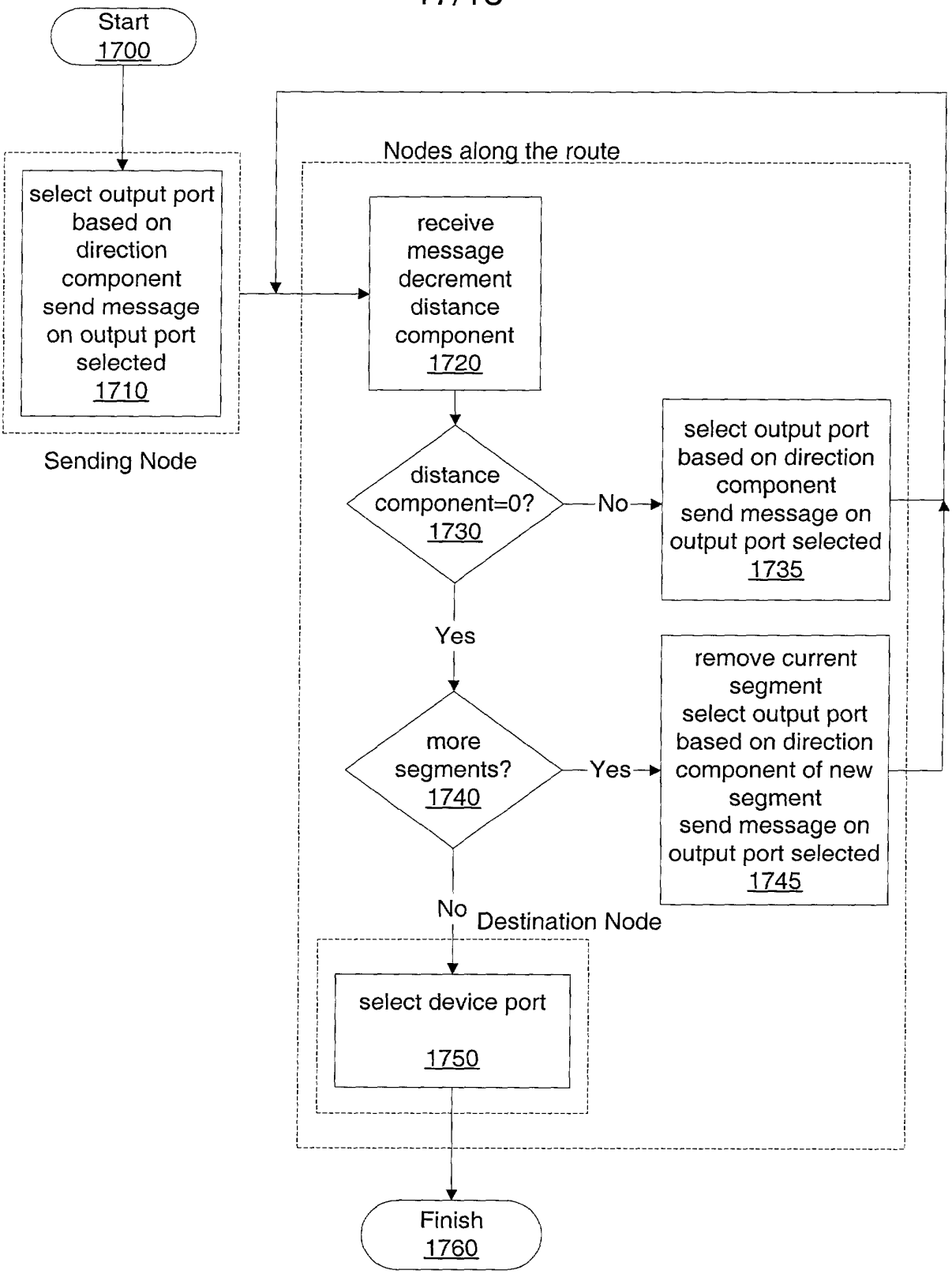

Start
1700
Nodes along the route
select output port based on direction component send message on output port selected
1710
Sending Node
receive message decrement distance component
1720
distance component=0?
1730
No
select output port based on direction component send message on output port selected
1735
Yes
more segments?
1740
Yes
remove current segment select output port based on direction component of new segment send message on output port selected
1745
No
Destination Node
select device port
1750
Finish
1760

Figure 17

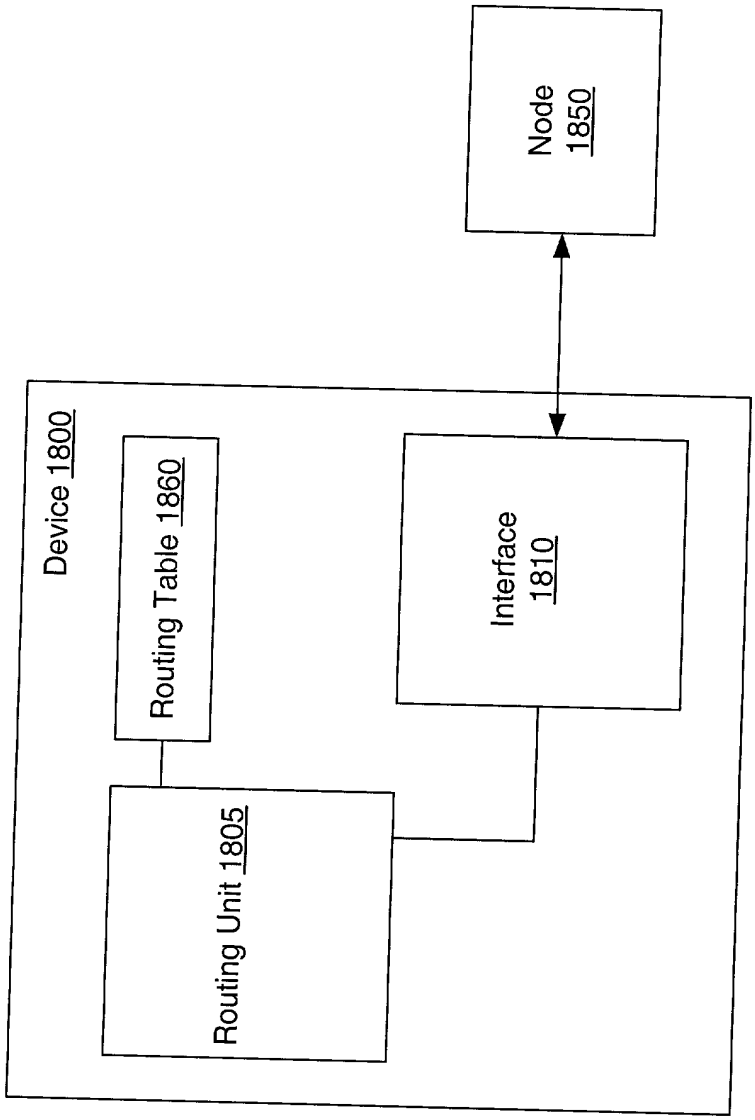

Node
1850
Device 1800
Routing Table 1860
Interface
1810
Routing Unit 1805

Figure 18